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QUINE'S IDEOLOGICAL DEBACLE

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Abstract

In two papers in the mid-seventies, Quine has discussed an ontological debacle, the reduction of ontology to an ontology of pure sets only. This debacle, which weakened Quine's interest in ontology, is the natural outcome of ontological relativity, or, more precisely, the proxy-function argument. It is explained how Quine unavoidably came to this conclusion. Moreover, it is argued that the result is even more damaging for Quine's philosophy than has hitherto been assumed. It is shown that in addition to an ontological debacle, there is an ideological debacle, reducing the ideology (lexicon) of science to the ideology of set theory. The ideological debacle results from applying extensional substitution of predicates within a scientific theory that is reinterpreted by means of proxy-functions to a theory with a set-theoretic ontology. Though Quine has recognized the possibility of an ideological debacle, his rebuttal is unconvincing. As a result, his tenet of extensionalism is under heavy pressure.

1. Introduction

In this article I will explain an unwelcome result of Quine's thesis of ontological relativity. I will claim that a combination of some of Quine's central philosophical tenets leads to a situation where the whole of science collapses to set theory, not only at an ontological level, but also at the level of the ideology. I will analyse a scenario that Quine worked out in the mid-seventies, which he called an ontological debacle. I will conclude that Quine should also accept that this leads to what I have called an ideological debacle.

The term ideology may strike the reader as odd. While Quine's notion of ontology is well-known, his notion of ideology is seldom referred to.¹ Everybody knows more or less what Quine's means by the

word ‘ontology’; it concerns the study of what there is. It concerns the values of our variables, and these are the objects in our universe. In 1951 Quine wrote a brief article, “Ontology and ideology.” In addition to ontology, the word ideology was introduced as the study of ideas, expressed in the predicates of our language. Quine also uses the two words in another sense. One can speak of the ontology of a theory, the collection of the values of the variables the theory is committed to. The ideology of a theory is the list of predicates of the theory. One can show that there is a subtle interplay between ontology and ideology in Quine’s philosophy.² I will present here one dramatic consequence of Quine’s construction. It will be shown that the ontology of science consists of pure sets only, i.e. sets that are formed by means of the empty set, pairing, taking power sets and replacement. I will argue, and this is something Quine tried to avoid, that also the ideology of science might be replaced by a lexicon of set-theoretical predicates only. The whole of science then is reduced to set theory. This argument jeopardises Quine’s broad use of the tenet of extensionalism.

I will give the argument in a few steps. In the next section, I will briefly present Quine’s inscrutability of reference, which forms the basis of my argument. I will distinguish two Quinean arguments. The first and most famous argument from *Word and Object* is based on the indeterminacy of translation. The second argument is based on proxy functions, and will be the most relevant one for the rest of the paper. In the third section I will then illustrate how Quine, after having lost faith in ontology at the end of the sixties, presented an ‘ontological debacle’ in two papers in the mid-seventies. In Quine’s mind, this consequence was not really harmful, because he believed that instead of ontology, the burden of explanatory power should shift to ideology. Not objects, but the predicates were to become most important. However, as will be shown in the fourth section, this step has consequences Quine would rather not have. If one takes Quine’s tenet of extensionalism really serious, one can equally obtain an ideological debacle in addition to Quine’s ontological debacle. In the last section, I will assess some remedies, and conclude that the role of extensionalism in Quine’s philosophy is under pressure.

Throughout the paper, I will be as faithful to Quine’s ideas as possible. Though one might find some Quinean tenets, implausible from

the start, I will take Quine's philosophical starting points for granted without further defence. The critique here presented is an internal one. I develop an argument in a Quinean style on the basis of some of Quine's basic tenets, so to conclude that this leads to a most irksome situation.

2. Ontological Relativity

In *Word and Object* Quine hit upon ontological relativity or inscrutability of reference. In order to substantiate his thesis of the indeterminacy of translation, Quine works out a case of radical translation. He pictures the scene of a field linguist accompanied by a native speaker of some foreign tribe, whose language has not yet been studied. A rabbit scurries by, and the native utters "Gavagai." The linguist ventures the translation "Rabbit," or "Lo, a rabbit." Quine is convinced that it may well be the case that the alleged general term "gavagai" is not co-extensional with the general term "rabbit." Quine gives a list of objects that could be meant by the term "gavagai": "mere stages, or temporal segments, of rabbits"; or "sundry undetached parts of rabbits"; or "the continuous portion of the spatio-temporal world that consists of rabbits." We can also take it as "a singular term naming a recurring universal, rabbithood." (Quine 1960, pp. 51–52)

The reason why the extensions of general terms cannot be determined is because the notion term is not well defined. In radical translation, we have only the scenery and the linguistic behaviour at our disposal. The criterion of ontological commitment of the foreign language is unknown. The criterion is related to the syntax of the language. It is however not clear how to relate the English criterion of ontological commitment, namely to be is to be the value of a pronoun, (Quine 1995, p. 29) or the logical criterion of ontological commitment, namely to be is to be the value of a variable, (Quine 1939, p. 708; 1953, p. 15) to the syntax of the foreign language:

We cannot even say what native locutions to count as analogues of terms as we know them, much less equate them with ours term for term, except as we have also decided what native devices to view as

doing in their devious ways the work of our own various auxiliaries to objective reference: our particles and pronouns, our singular and plural, our copula, our identity predicate. The whole apparatus is interdependent, and the very notion of term is as provincial to our culture as are those associated devices. The native may achieve the same net effects through linguistic structures so different that any eventual construing of our devices in the native language and vice versa can prove unnatural and largely arbitrary. (Quine 1960, p. 53)

The argument for inscrutability on the basis of the indeterminacy of translation may be summarised as follows. Since the thesis of the indeterminacy of translation states that there are various equally acceptable, but incompatible manuals of translation from our language to a foreign language, we can translate the foreign language in different ways to our own. Each of the translations will relate different phrases with our apparatus of individuation. Different translations may involve different subsets of the English lexicon of predicates. The analogue of Tarski's paradigm may be applied to the different translations of the foreign language, but will yield different ontologies for different manuals of translation.

In later years this first argument for ontological relativity based on the indeterminacy of translation did no longer appear in Quine's work. Inscrutability of reference is now explained solely by means of the so-called proxy function argument. Proxy functions appear for the first time in Quine's lecture "Ontological reduction and the world of numbers," which does not deal with ontological relativity but with ontological reduction. Proxy functions are a part of the explanation of ontological reduction. Quine clarifies his account of ontological reduction by means of Carnap's reduction of impure numbers to natural numbers. Impure numbers are measures, such as degrees-Centigrade. In the sentence "The temperature of x is $n^{\circ}\text{C}$," the term " $n^{\circ}\text{C}$ " is an impure number. The impure numbers can be reduced to natural numbers if we take n instead of $n^{\circ}\text{C}$. (Quine 1964, p. 213)

Ontological reductions satisfy three conditions. First, the truth-values of the sentences remain the same after an ontological reduction. Second, all the predicates that denote the unreduced entities must be reinterpreted adequately. Third, a mapping between the un-

reduced entities and the reduced entities can be specified, and here we get the definition of a proxy function:

This third condition is that we be able to specify what I shall call a *proxy function*: a function which assigns one of the new things, in this example a pure number, to each of the old things – each of the impure numbers of temperature. In this example the proxy function is the function “how many degrees centigrade” – the function f such that $f(n^{\circ}\text{C}) = n$. It is not required that such a function be expressible in the original theory θ to which ‘ H ’ [‘the temperature of x is α ’] belonged, much less that it be available in the final theory θ' to which ‘ H_c ’ [‘the temperature of x is $n^{\circ}\text{C}$ ’] belongs. It is required rather of *us*, out in the metatheory where we are explaining and justifying the discontinuance of θ in favor of θ' , that we have some means of expressing a proxy function. Only upon us, who explain ‘ $H(x, \alpha)$ ’ away by ‘ $H_c(x, n)$ ’, does it devolve to show how every α that was intended in the old θ determines an n of the new θ' . (Quine 1976b, pp. 217–218)

This characterisation of a proxy function is retained in all of Quine's further writings.³

Quine has later used proxy functions, which were initially meant to restrain ontological reductions, to illustrate the inscrutability of reference. The argument is quite simple given the definition of a proxy function. The only difference with proxy functions used in ontological reduction is that they are one-to-one.⁴ To prove the inscrutability one starts with an interpreted theory. This interpretation consists of a list of predicates, a domain of objects, and assigns subsets of the ontology to each predicate of the lexicon. If a one-to-one proxy function is given, the theory may be reinterpreted by taking the ontology of proxies and assigning to each predicate the proxies of the elements that belonged to the extension of predicate under the initial interpretation. It is clear that such a reinterpretation of the theory leaves all the truth-values of its sentences unchanged. The lesson Quine draws from this is that it does not matter whether the initial interpretation or one of its myriad reinterpretations is countenanced. The reference of the language or theory goes inscrutable.

This proxy function argument stems from Quine's background in logic and mathematics. Quine's initial examples of proxy functions are

mathematical. The ubiquitous example is the case of Gödel-numbering. For every expression there is a Gödel number, and all predicates denoting expressions may be reinterpreted as denoting Gödel numbers:

Thus suppose we take fx as the Gödel number of x , and as our old system we take a syntactical system in which one of the predicates is “is a segment of.” The corresponding predicate of the new or numerical system, then, would be one which amounts, so far as its extension is concerned, to the words, “is the Gödel number of a segment of that whose Gödel number is.” The numerical predicate would not be given this devious form, of course, but would be rendered as an appropriate purely arithmetical condition. (Quine 1969, p. 57)

Quine also gave various other examples of proxy functions, some of them more credible than others. Another mathematical example is to supplant each class by its logical complement, leaving individuals aside. The proxy-function is one-to-one, and the predicate of membership is reinterpreted as nonmembership. (Quine 1981, p. 16; 1995, p. 73) Other examples are “is a place-time of,” (1981, p. 19) or “is the cosmic complement of.” (1995, p. 72)

As a result of the inscrutability of reference, Quine’s views on ontology have radically changed. Quine’s strong interest in ontology was mitigated to a brand of structuralism.⁵ Ontology became the study of structures in which individuation is possible. Objects are envisaged as nodes or places in a structure. The difference between places and placeholders is blurred by the inscrutability of reference. Quine has baptised his position “global structuralism” in “Structure and nature:”

The point is that if we transform the range of objects of our science in any one-to-one fashion, by reinterpreting our terms and predicates as applying to the new objects instead of the old ones, the entire evidential support of our science will remain undisturbed. ... The conclusion is that there can be no evidence for one ontology as over against another, so long anyway as we can express a one-to-one correlation between them. Save the structure and you save all. (Quine 1992, p. 8)

3. An Ontological Debacle

The use of the proxy function argument gave a fatal blow to Quine's initial ontological project. One of the best illustrations is a scenario Quine sketched in the mid-seventies, which he called an ontological debacle. In the papers "Whither physical objects"? (1976b) and "Facts of the matter" (1979) Quine uses proxy functions to reduce physical objects to sets. Physical objects, and sets of them, and sets of sets of them constitute the whole ontology of the world. No other objects exist. Quine then characterises physical objects as follows:

Consider my broad conception of a physical object: the material content of any portion of space-time, however scattered and discontinuous. Equivalently: any sum or aggregate of point-events. The world's water is for me a physical object, comprising all the molecules of H_2O anywhere ever. There is a physical object part of which is a momentary stage of a silver dollar now in my pocket and the rest of which is a temporal segment of the Eiffel Tower through its third decade. (Quine 1981, p. 124)

Quine's definition of physical objects is a mereological one. Now, using the proxy function argument, it is possible to take the space-time regions instead of their contents, and reinterpret the predicates accordingly. We thus end up with a physical ontology of space-time regions. As well-known, space-time regions can be described by means of coordinates. It is thus possible to have a one-to-one relation between physical objects and the sets of quadruples of reals, which can be used as a proxy function. We end up with an ontology of sets of quadruples of real numbers. A further proxy function may be used to reduce real numbers to sets of natural numbers by means of Dedekind cuts. By means of a further proxy function, based on Zermelo's or von Neumann's way of reducing natural numbers to pure sets, one can use pure sets instead of natural numbers. The result is that the ontology of physical objects becomes inscrutable and that we end up with pure set theory.⁶ In the two mentioned papers, Quine called this form of hyper-Pythagoreanism an "ontological débacle." Physics lost its ontology, and had to proceed with set theory only.

Quine had of course to find some way to save physics or science in general, and he took recourse to ideology. He hoped ideology could take over the crucial role of ontology in science:

We must note that this triumph of hyper-Pythagoreanism has to do with the values of the variables of quantification, and not with what we say about them. It has to do with ontology and not with ideology. The things that a theory deems there to be are the values of the theory's variables, and it is these that have been resolving themselves into numbers and kindred objects - ultimately into pure sets. The ontology of our system of the world reduces thus to the ontology of set theory, but our system of the world does not reduce to set theory; for our lexicon of predicates and functors still stands stubbornly apart ... We might most naturally react to this state of affairs by attaching less importance to mere ontological considerations than we used to do. We might come to look to pure mathematics as the locus of ontology for a matter of course, and consider that lexicon of natural science, not the ontology, is where the metaphysical action is. (Quine 1976b, p. 503)

This ontological debacle is one of the major reasons why Quine's interest in ontology has withered. However, from a metaphysical, or rather epistemological view - ontology was considered a handmaiden of epistemology - nothing had really changed according to Quine. If we want to discuss our knowledge of the world, expressed in our scientific theories, we should not look at the objects they describe, but at the ideas expressed in them through the predicates by means of which the (scientific) language is regimented. Quine was confident that this did not bring along new problems. In the next section, it will be argued that there is every reason for grave concern.

4. An Ideological Debacle

It is important to note that the proxy function argument has also affected Quine's ideology. Ontology and ideology go hand in hand, since the objects, the members of an ontology, are the objects denoted by the predicates.⁷ The predicates form the ideology of a theory. Shaking the ontology will have reverberations in the ideology. A proxy func-

tion clearly invokes a change in the ideology. A reshuffling of the ontology invokes a reinterpretation of the ideology. If we commit ourselves to natural numbers instead of to impure numbers, then this will involve a reinterpretation of the predicate "the temperature of x is $n^{\circ}\text{C}$." In fact, this is all the change there will be. If instead of dogs we consider place-times of a dog, then the predicate "is a dog" becomes "is the lifelong filament of space-time taken up by a dog."⁸ Going proxy only involves a change in ontology and ideology, while the rest, the sentences and their truth-values remain untouched:

There has been a revision of ontology on the one hand and of ideology, so to say, on the other; they go together. Yet verbal behavior proceeds undisturbed, warranted by the same observations as before and elicited by the same observations. Nothing really has changed. (Quine 1981, p. 19)

The use of proxy functions has eventually shifted the explanatory force of theories from ontology to ideology.

The result of the shift of ontology to ideology is that predicates are rather taken as expressing notions than classes. The physical predicates of course have an extension, but in addition they carry meaning or are informative. Quine gives the following example:

Thus consider, for a homely example, the ascription of temperature. What admits of a temperature is not a point, strictly speaking, but a small spatiotemporal region. A dyadic predicate is called for, predicable of a number and a set of quadruples of numbers: thus ' $Fx\alpha$ ', meaning that the mean temperature in degrees Kelvin of the region whose coordinates comprise the set α is x . The notion of temperature and its scale of measurement are compacted in the monolithic predicate ' F '. The business of objective reference now devolves upon the mathematical variables ' x ' and ' α ', whose values are pure numbers and sets of quadruples of reals. (Quine 1976b, p. 501)

If physics has to be informative, a lot of information must be compacted in the predicate ' F '. The notion of temperature involves certainly more than couples of quadruples of reals and reals. This seems

irreconcilable with the rest of Quine's philosophy, and more especially with his extensionality thesis.

It is not clear how to individuate the (semantic function of the) predicates.⁹ The only nonintensional way of characterising predicates is by giving their extension. This extension is a class of objects. It is obvious from the presentation hitherto that ontology can be reduced to an ontology of pure sets only. The ideology can be reinterpreted suitably. For the sake of the argument, we will suppose that ontology and ideology have been so reinterpreted. Thus the extension of any predicate consists of pure sets only. This implies that set-theoretic predicates, picking out the required extensions for our theory, are all we need. We no longer need predicates from special sciences such as physics or biology, if we have for each predicate in these sciences another predicate in set theory that picks out the same extension. If we have a predicate, say 'F', determining the temperature of a part of space-time in a measurement system, then this predicate may determine the same extension, the same class of pure sets, as another predicate 'G', that is only used in set theory. If two predicates determine the same extension, then they are interchangeable *salva veritate*. We can always use the set-theoretic predicate 'G' instead of the physical predicate 'F'. In this way we can eliminate all the predicates from special sciences in favour of predicates from set theory. Together with an ontological debacle there is an ideological debacle. The proxy function argument allows us to eliminate all physical objects in favour of sets, and the extensionality thesis allows us to eliminate all physical predicates in favour of set-theoretic predicates. No predicates, but the predicates having as extension pure sets, are necessary. Our theories of the world, both their ontology and ideology, have collapsed to pure set theory.

Let me give another example that may clarify what I mean by an ideological debacle. We may have a special science, say geography, in which we have a predicate 'F', "is a point on the surface of the Earth." We have reinterpreted our science so that we have an ontology of numbers; for the sake of brevity I will not use sets. For this reinterpretation I have chosen the centre of the Earth as the central point of our reference system with the ordinary scale. This means that the extension of the predicate 'F' is the extension of a predicate 'G', namely "is a

quadruple of real numbers, with the sum of the squares of the first three numbers equal to the square of 6700," 6700 being the radius of the Earth in kilometres. This is just the mathematical expression of being a point on a sphere with radius 6700 km, with a dummy parameter for the time coordinate. The extension of both predicates is just the same set of quadruples of real numbers. Throughout geography, if geography is a good, *i.e.* extensional, science, we can replace the predicate "is a point on the surface of the Earth" by its mathematical counterpart. Along these lines we could eliminate the complete geographical lexicon. The ideology of geography is reduced to the ideology of mathematics. One can easily imagine that this could be done for all the predicates in science, or at least for a crucial part of the lexicon.

Quine was aware of the threat of an ideological debacle, a collapse of ideology to mathematics:

The polysyllabic functor last cited is characteristic: 'temperature in degrees centigrade of the region whose coordinates are'. Let me abbreviate it as ' f '. It relates pure sets; we have ' $f\alpha = x$ ' where α is a set of quadruples of numbers and x is a number. But there is no hope nor fear nor thought of translating this ' f ' itself into the notation purely of set theory: into the ' \in ' of membership and the symbols of logic. The relation of the coordinates of a place to the centigrade temperature is indeed a relation of numbers, a relation of sets, but it is presumably not an arithmetical relation, not a set-theoretic relation. By an extraordinary coincidence and a stretch of the imagination it could be, indeed: there may be some complex formula in the notation of pure arithmetic or set theory that just happens to pair the coordinates of all places correctly with their temperatures, throughout space-time. But we have no inkling of it - no inkling of a mathematical formula fixing the temperatures everywhere through all eternity. (Quine 1976b, p. 503)

Quine seems quite confident that the collapse of ideology to mathematical or set-theoretic ontology is not likely to happen, or at least, we have no inkling of such a collapse. However, the passage not convincing and deserves further reflection.

Quine's reassurance notwithstanding, there is ample reason to fear this ideological debacle. If one looks at the actual practice of contemporary physics, the predicates that are used are without exception

mathematical functions. This means that it cannot be an ‘extraordinary coincidence’ that one could describe physical predicates by means of complex formulas in pure arithmetic. In all physical handbooks, temperature appears as a mathematical function. Without the possibility of treating temperature as a mathematical object, thermodynamics is precluded. Temperature occurs essentially in its basic differential equations. Without counting temperature as a mathematical object, a solution of differential equations, thermodynamics is jeopardised.¹⁰

Rather than saying that we have no inkling of an ideological debacle, we should say that especially in theoretical physics, there is no escape from it. Not only temperature, but most predicates in theoretical physics are thus on the verge of collapse to set-theoretic predicates. Mass, spin, momentum, acceleration, force, luminosity, etc. all appear in mathematical equations. Not only in physics this is the case, but also in other mathematised branches of science, such as chemistry, population genetics, or economics. Interest rate, inflation, etc. are predicates that appear in mathematical equations in economics.

It is to some extent debatable how far this procedure can be extended. It is not entirely clear that one could really replace all the predicates in our scientific web of belief by set-theoretical co-extensional predicates. One may rightfully doubt whether some predicates in biology, sociology, etc. can really be replaced by means of mathematical expressions. Nevertheless, this does not really weaken the impact of the ideological debacle. Because, even if certain domains of science would be unscathed, still major damage would be done to very central scientific disciplines. It is not clear how to avoid the ideological debacle in physics, for Quine probably the most eminent scientific discipline. It could hardly be imagined that Quine would be eager to tolerate an ideological debacle, even if it were restricted to physics only. In sum, there is every reason to take the scenario of an ideological debacle very serious.

5. Extensionalism

The ideological debacle here presented poses a serious problem for Quine’s philosophy. It is obtained by combining some very elementary

tenets from his philosophical framework, namely the proxy function argument and extensionalism. The combination of these two tenets leads to the collapse of the whole of science, or at least very important parts of it, to pure set theory. More disconcertingly, there are no straightforward remedies. In view of the ontological debacle, Quine had already taken very drastic measures by renouncing the central role he previously attributed to ontology. But in view of the ideological debacle, even more far-reaching measures are called for.

As a first attempt to avoid the problem, one could reject the thesis of ontological relativity. But as Quine has realised over a few decades,¹¹ ontological relativity is a very natural outcome of his logical and ontological framework. One can only avoid ontological relativity by giving up the entire Quinean ontological framework. This is probably the least attractive option for Quine.

A second remedy would be to limit the scope of the ontological framework, by restricting the role of the logical framework. Regimenting science in first order logic, according to Quine a necessary condition for austere science, leads to ontological relativity. One could thus question the use of logical regimentation in science. At first glance, this is not really counterintuitive. On the contrary, it is rather unlikely that one could reformulate disciplines such as biology, sociology or history in first order logic. Even for physics, one may doubt that regimentation is useful. There is seldom any need to 'regiment' physics to a first-order language, and to sort out a list of physical predicates. A superficial glance at some textbooks or articles of theoretical physics, or other sciences, will reveal that logical formulations hardly occur. The scope of the ontological framework would thus be restricted to mathematics or set theory. After all, the framework was first developed in response to technical difficulties in set theory (Decock 2004). Still, this way out would be a very radical departure from Quine's philosophy.¹²

A third and seemingly less radical departure, would be to block the substitutions that lead to problems. If one is not allowed to replace a predicate with a co-extensional predicate in the scientific framework, or if this is not allowed for a certain class of predicates, then the ideological debacle would be avoided. However, for Quine still would still be a very disheartening solution, as extensionalism would be rejected.¹³

Nevertheless, from the passages quoted, this must be the way Quine should be prepared to go. He shifts the burden from ontology to ideology, and thus predicates become more important.

There are many passages in Quine's work where he discusses the semantic role of predicates. These can be 'meaningful without a meaning'. (see e.g. Quine 1953, p. 11) Quine does not want meanings (or any intensions) in his philosophy, because there is no criterion of identity that allows for identification of meanings. However, predicates can be used in a semantic way, as meaningful expressions. Quine even admits that different expressions may not be synonymous, though they are co-extensional e.g. "creatures with kidneys" and "creatures with a heart." (see Quine 1953, p. 21; 1970, pp. 8–9; 1987, p. 22) On the other hand, the synonymy relation and meanings are not be taken serious from a scientific point of view for lack of austerity. As a result, the semantic role of predicates in Quine's philosophy is rather unclear.

The fact that predicates are to some extent dubious or murky would not be harmful, it not for their pivotal role in Quine's philosophical framework. As a result of the ontological debacle, Quine has to rely heavily on the ideology of science. Moreover, as the ideological debacle points out, the semantical role of predicates is crucial for their use in science, i.e. it is not sufficient to look at their extensions only. The natural conclusion would be that one has to accept that the meanings of predicates cannot easily be dismissed, and must be accounted for. One cannot on the one hand rely on the meanings of predicates 'where the metaphysical action is' and at the same time deny that these meanings exist in some way. The most reasonable solution for the ideological debacle would be to accept that predicates are to be used in an intensional way, i.e. the predicates cannot be substituted for one another *salva veritate*, and without loss of meaning. The ontological and ideological debacle thus undermine Quine's thesis of extensionality.¹⁴

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Resumo

Em dois artigos em meados dos anos 70s, Quine discutiu um desastre ontológico, a redução da ontologia a uma pura ontologia de conjuntos. Esse desastre, que enfraqueceu o interesse de Quine pela ontologia, é o resultado natural da relatividade ontológica, ou, mais precisamente, do argumento das funções vicárias. Explica-se por que Quine chegou a essa conclusão inevitável. Além disso, argumenta-se que o resultado é ainda mais danoso para a filosofia de Quine do que se presumiu até aqui. Mostra-se que, além do desastre ontológico, há um desastre ideológico, reduzindo a ideologia (léxico) da ciência a uma ideologia de teoria de conjuntos. O desastre ideológico resulta da aplicação de substituições extensionais de predicados dentro de uma teoria científica, que é reinterpretada por meio de funções vicárias como uma teoria com uma ontologia da teoria de conjuntos. Embora Quine tenha reconhecido a possibilidade de tal desastre ideológico, sua resposta não é convincente. Como resultado disso, sua tese extensionalista fica sob forte pressão.

Palavras-chave

Extensionalismo, ontologia, predicado, Quine, teoria de conjuntos.

Notes

¹ In Burgess and Rosen 1997, and Shapiro 1997, the term 'ideology' is used in a Quinean sense. However, Shapiro's account slightly deviated from Quine's use, as also modal concepts belong to the ideology, see Shapiro 1997, p. 218.

² For an elaborate account of this interplay, see Decock 2002.

³ In the quotation, a 'metatheory' is mentioned. In order to carry out the ontological reduction (or to use the proxy function argument for ontological relativity), one needs a level to contemplate both the unreduced and the reduced theory (or the initial and reinterpreted theory). It would seem that an encompassing theory and an overall ontology is needed in order to use proxy functions. Strictly speaking, this would mean that one is not reducing (or reinterpreting) a theory, but that one is extending it. Quine was aware of this problem. He said that the proxy function "suffers from a conspicuous element of make-believe" (1964, p. 219). Later, he regarded the argument as a *reductio ad absurdum* (1969, p. 58); the encompassing universe is only countenanced for the sake of the argument. I will not elaborate the possible problems here involved.

⁴ In the first article (1964, p. 220), Quine explicitly rejects one-to-one proxy functions, and opts for many-one functions.

⁵ Already in Quine 1964 (p. 220), proxy functions were related to structuralism. Quine mentions Goodman's use of them to obtain some form of structuralism.

⁶ The reductions from real numbers to pure sets are elaborated in *Set Theory and its Logic*. This work is further interesting in relation to this paper, because it makes clear how Quine's ontological reflections make perfect sense in a mathematical context. Even if one neglects the real material world, and only concentrates on the mathematical universe, ontological questions are still fruitful and inevitable. Far more than usual in contemporary set theory, Quine is very meticulous about ontological commitments, i.e. abstraction principles. In Decock 2004, I have argued that specific technical problems in set theory triggered Quine's interest in ontology.

⁷ Quine argues that this is equivalent to the criterion of ontological commitment 'to be is to be the value of a variable'. He reformulates this as "[T]o be is to be denoted by a one-place predicate." (1995, p. 35)

⁸ A similar problem as in footnote 3 arises. One has to be able to discuss the reinterpretation from an overall point of view, comprising both interpretations. Quine can state that after the reinterpretation the phrase "is a dog" is still used, since the phrase "is the lifelong filament of space-time taken up by a

dog” is only the meaning of “is a dog” in the reinterpreted language as expressed in the initial language.

⁹ Strictly speaking, from an ontological point of view, predicates are linguistic expressions and thus identifiable by means of spelling as strings of phonemes or strings of letters. For a longer discussion and references, see Decock 2002, section 2.4.

¹⁰ As a rejoinder, it might be argued that physics does not describe reality as it is, but is only able to yield local approximations. Quine seemingly employs this line of reasoning when he says that there is probably no “mathematical formula fixing the temperatures everywhere through all eternity.” However, this seems at odds with Quine’s naturalism. With the metaphor of Neurath’s ship that is permanently rebuilt at sea, Quine put forward the view that we always look at science from the inside. The view that there is an external reality that we can never grasp is incompatible with this immanentism. The temperature predicate must be encompassed within the scientific framework, i.e. within thermodynamics. In view of the smoothness of these equations, there is no reason to believe that the total temperature distribution would be so irregular that it cannot be described by means of mathematical functions.

¹¹ Quine’s thesis of ontological relativity was formulated in Quine 1969, and was presented as the John Dewey Lectures in March 1968. Quine’s first publication on ontology was the text “Designation and Existence” from 1939.

¹² In Decock 2002, section 7.1, I assess the use of Quine’s logical framework for ontological question, and suggest that this option may be necessary.

¹³ Extensionalism is one of the most central tenets in Quine’s philosophy. In an interview with Fara (1994), he named extensionalism and naturalism as the two central tenets of his philosophy. His critique on Carnap’s intensional modal systems was crucial for the development of American philosophy, he never accepted Kripke’s models for modal logic, and even in his latest writings, he defended extensionalism (e.g. 1994).

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